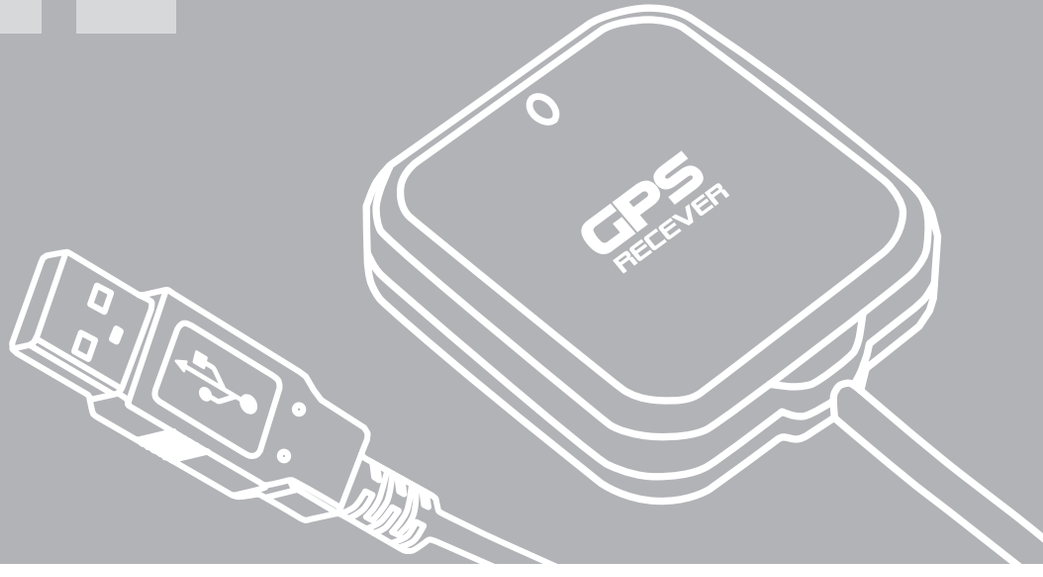
Wintec

WGM-302

GPS Receiver



ENGLISH / 繁體中文

USER'S MANUAL

WGM-302
GPS Receiver

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INTRODUCTION

The WGM-302 is a high sensitive GPS receiver with an internal antenna. It incorporates the u-blox5, wide range GPS chipset which are useful in navigation, security tracking purpose, map making and other agricultural needs. The USB (PS/2) connector enables the connection with a notebook, PC, car PC or other electronic devices.

CONTENTS

1 X WGM-302
1 X User manual
1 X Tool CD
1 X Non-skip pad

Before using the device, please make sure that all the accessories are included in the package. In case any one is missing or damaged, please contact your dealer immediately.

OVERVIEW

- GPS mode (before acquisition): red LED solid ON
- GPS mode (after acquisition): red LED turns blinking

[WGM-302 U]: USB interface
[WGM-302 P]: PS/2 interface

SAFETY NOTES

IMPORTANT HEALTH AND SAFETY INFORMATION

When using this product, take the following safety precautions to prevent all possible damages, injuries and legal consequences. Follow carefully all safety and operating instructions and keep them for future reference. Take heed of all warning notices in the user manual and on the product. In order to avoid injuries, electric shocks, fire and damage to the product, observe the following precautionary measures.

ELECTRICAL SAFETY

This product is designed for operation with power supply via the USB port. Any other use maybe endangers and leads to a loss of all claims under warranty for this product.

SAFETY NOTE CONCERNING DIRECT SUNLIGHT

Make sure that the device is not exposed to excessive humidity and extreme temperatures, such as a car dashboard, a windowsill or directly behind a glass pane, which is directly exposed to the sun or very strong UV light. Otherwise, the device or the vehicle might be damaged.

DAMAGES THAT NECESSITATE REPAIRS

Disconnect the product from the device connected in the following cases.

- A liquid or object has penetrated into the product.
- The product has fallen on the floor or has been damaged.
- There are visible signs of overheating.
- The product does not work flawlessly even though handled appropriately.

AVOID USING THE PRODUCT DIRECTLY AFTER STRONG FLUCTUATIONS IN TEMPERATURE.

If the unit is exposed to strong temperature and humidity fluctuations, this may lead to condensation of water inside the unit. In the purpose of avoiding damage to the unit, please wait until the humidity has evaporated before using the unit.

Note: When you bring the product from a cold to a warm environment, and vice versa, allow the product to acclimate to the temperature before you power it on.

SPECIFICATIONS

General specs	
Chips	u-blox5
Channels	18 channels tracking engine 32 channels acquisition engine
Frequency	L1, 1575.42 MHZ
Sensitivity	-160dBm
Accuracy	2.5m CEP 2.0m CEP (SBAS)
Dynamics	Signal levels Strong: typ. 4g Weak: typ. 1g
Protocol	NMEA 0183 V2.3
DC Voltage	5V
Operation current	Acquisition 110mA Tracking 70mA
Interface	USB [WGM-302 U] PS2 (UART/RS-23) [WGM-302P]
Operating temp	-20℃ ~ 70℃
Dimension	40mm x 37mm x 13mm

Transmission rate	
[WGM-302 U]	Auto baud rate. (1200, 4800, 9600, 19200, 38400, 57600, 115200 bps)
[WGM-302 P]	4800 bps
Acquisition (average)	
Hot start	<1 sec., averaged.
Warm start	25 sec., averaged,
Cold start	30 sec., averaged.
Update rate	1 Hz default, 4 Hz maximum.

OPERATION INSTRUCTION

- Before using the WGM-302, please install WGM-302 Tool from the CD-ROM.
- Plug the USB cable in a free USB port on you notebook etc. The WGM-302 will be recognized by your Windows operating system, and the GPS COM port will be available in the Device Manager under Connections.
- Place the WGM-302 at a suitable location well exposed to the satellite signals.
- The WGM-302 will automatically get acquisition and output data of position, speed and time in NMEA0183 format.

LED INDICATOR

- Blinking, get acquisition.
- Light on, without acquisition.

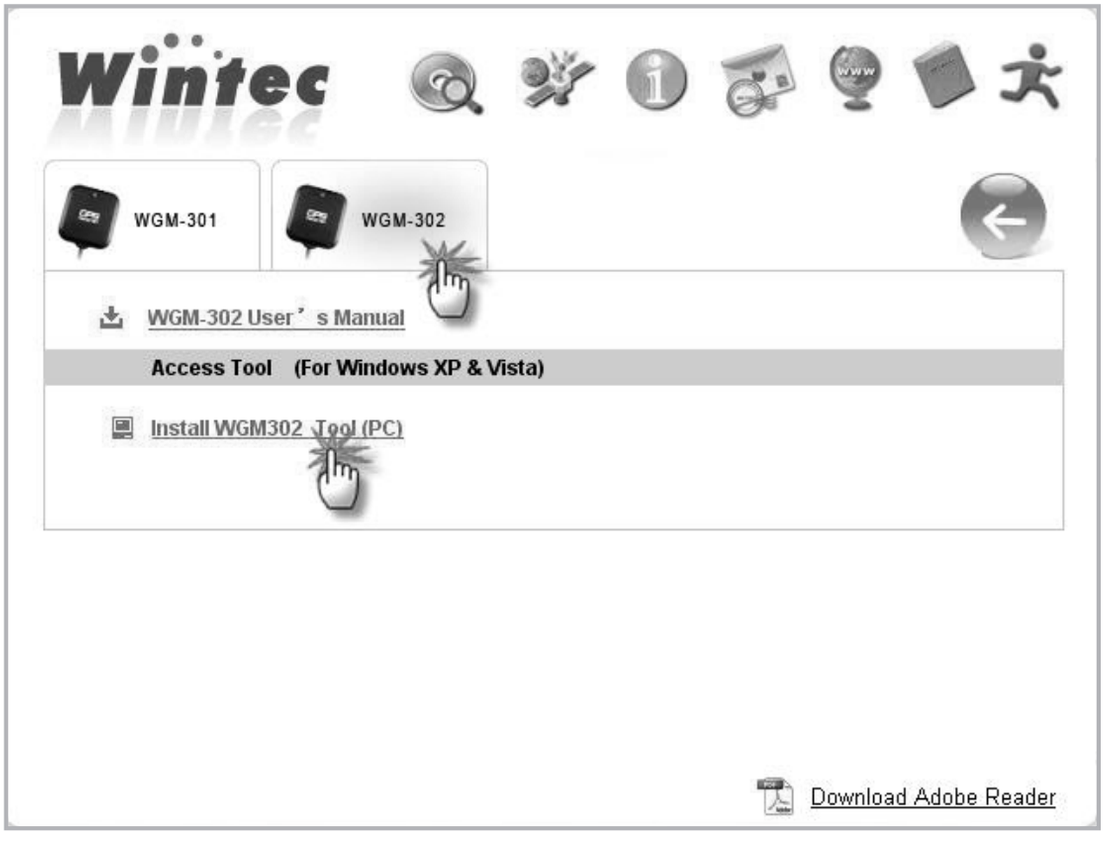
APPLICATION ENVIRONMENT

The WGM-302 can be used under Windows 2000/XP/Vista. The corresponding driver is available on the CD-ROM.

ACCESS TOOLINSTALLATION GUIDE

- Enter the CD-ROM attached to the product package.
- Press the arrow button for next page for selecting the WGM-302.

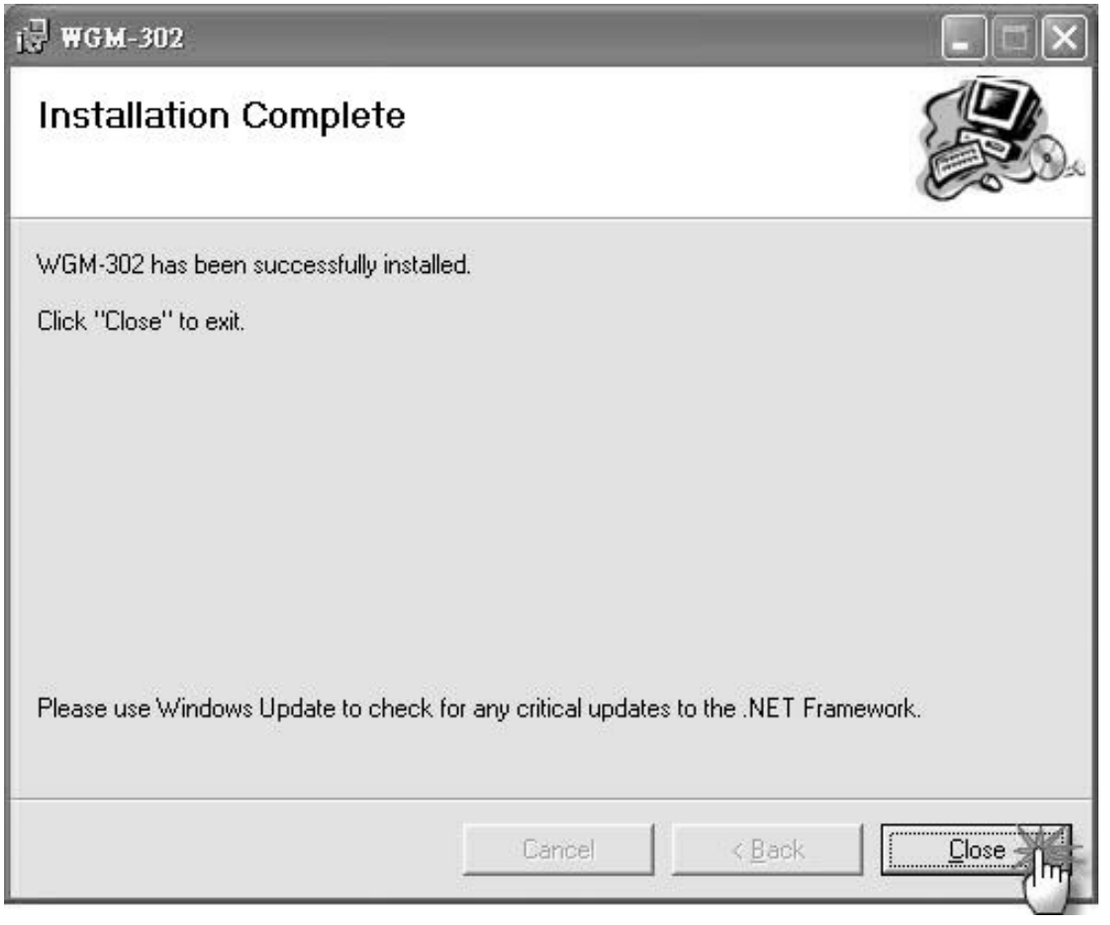
- Select the item “WGM-302”.
- Click “Install WGM-302 Tool (PC)”.



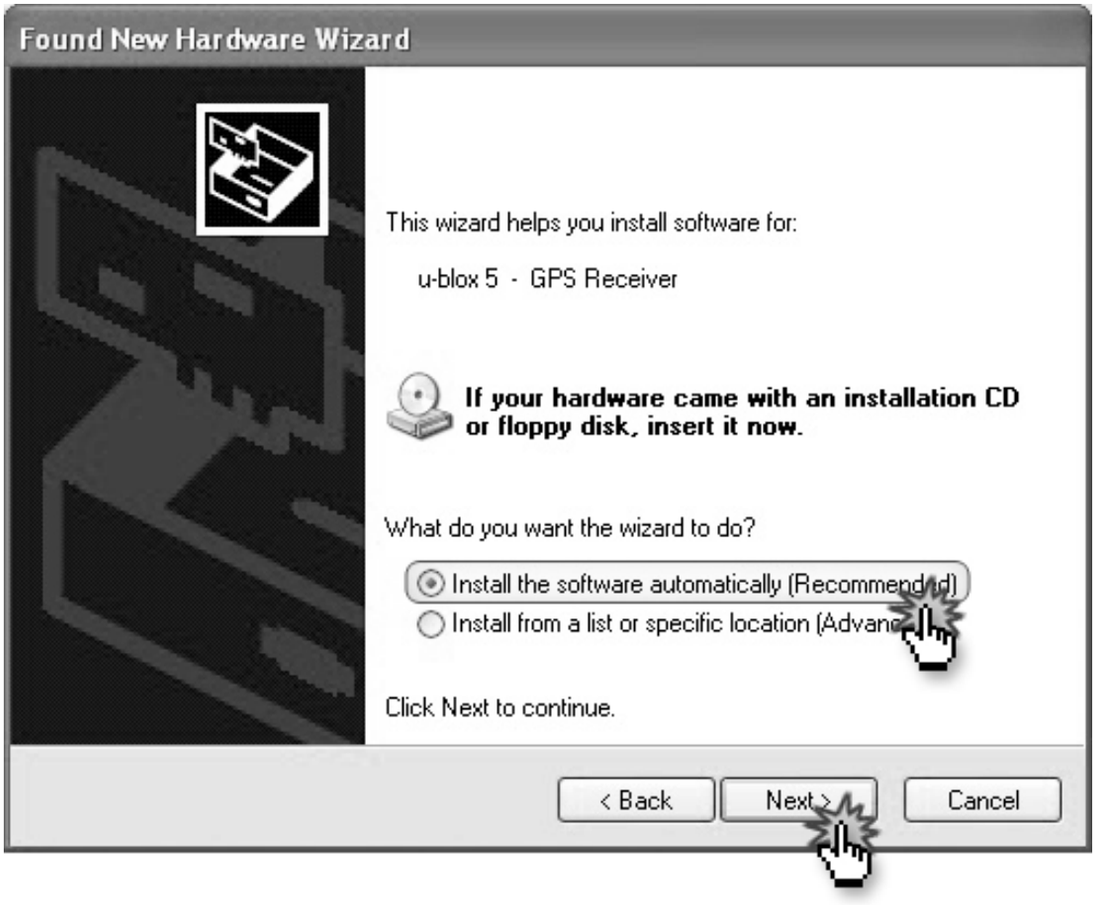
- Click “Next” to install WGM-302 Tool, and the USB driver will be installed at the same time.

WGM-302
Welcome to the WGM-302 Setup Wizard
The installer will guide you through the steps required to install WGM-302 on your computer.
WARNING: This computer program is protected by copyright law and international treaties. Unauthorized duplication or distribution of this program, or any portion of it, may result in severe civil or criminal penalties, and will be prosecuted to the maximum extent possible under the law.
Cancel
< Back
Next >

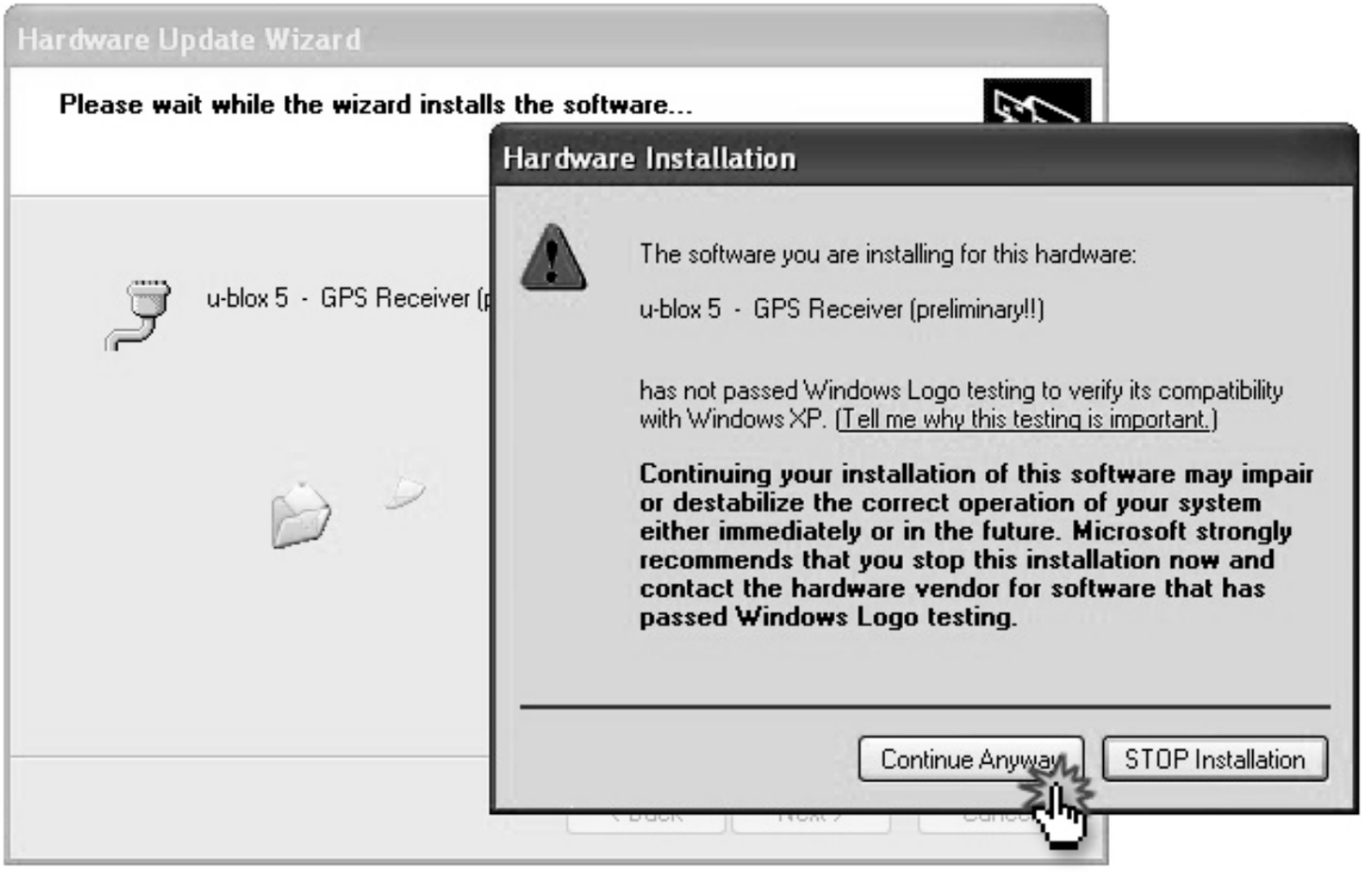
- The installation of WGM-302 Tool is completed.



- When you first connect the WGM-302 to your computer, following process will be requested.
- Select the recommended item and click “Next” button.


Found New Hardware Wizard
This wizard helps you install software for:
u-blox 5 - GPS Receiver
If your hardware came with an installation CD or floppy disk, insert it now.
What do you want the wizard to do?
Install the software automatically (Recommended)
Install from a list or specific location (Advanc
Click Next to continue.
< Back
Next >
Cancel

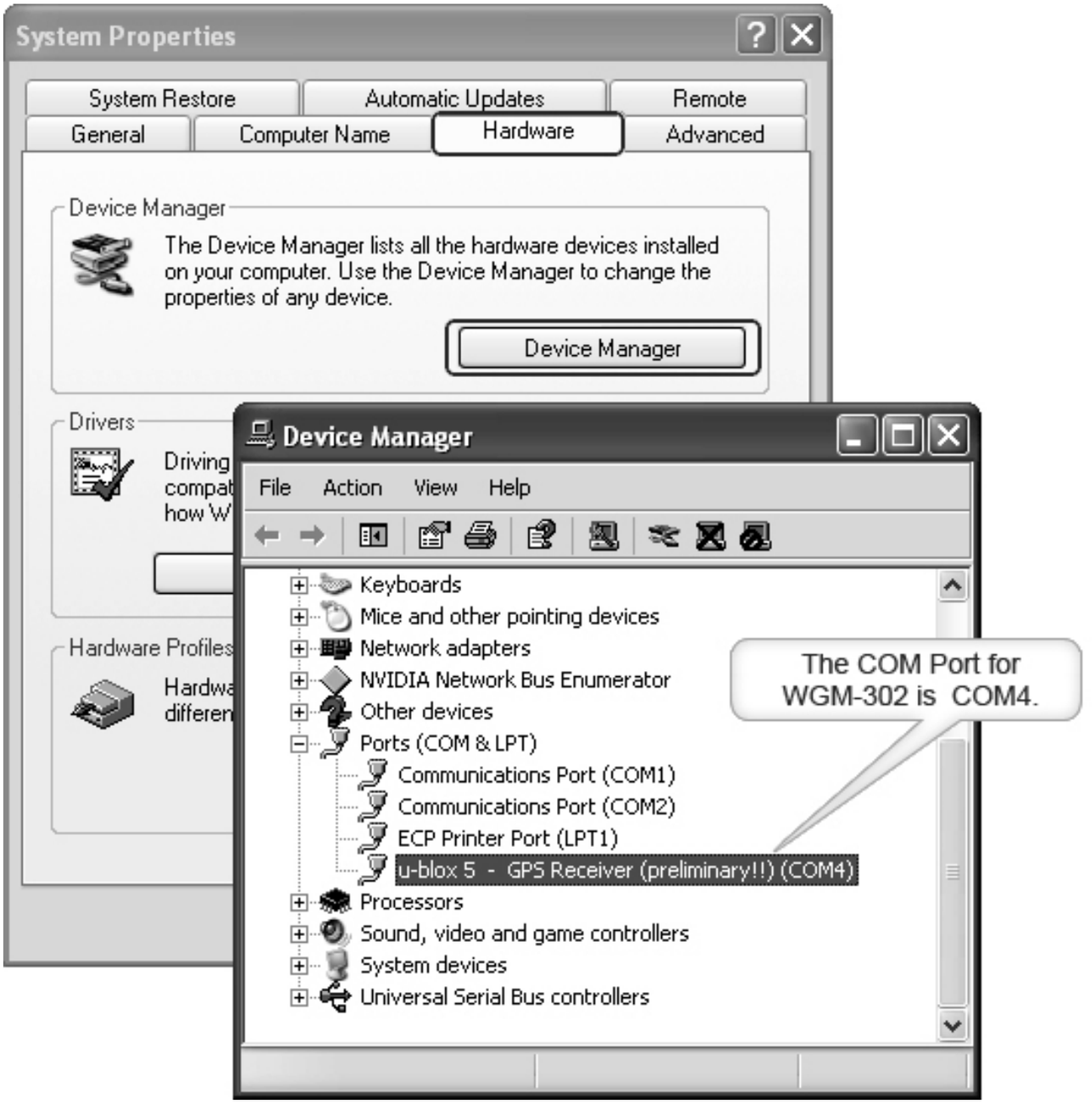
- Click “Continue anyway”.


Hardware Update Wizard
Please wait while the wizard installs the software...
u-blox 5 - GPS Receiver (p
Hardware Installation
The software you are installing for this hardware:
u-blox 5 - GPS Receiver (preliminary!!)
has not passed Windows Logo testing to verify its compatibility with Windows XP. (Tell me why this testing is important.)
Continuing your installation of this software may impair or destabilize the correct operation of your system either immediately or in the future. Microsoft strongly recommends that you stop this installation now and contact the hardware vendor for software that has passed Windows Logo testing.
Continue Anyway
STOP Installation

- Click “Finish” to complete it.

Hardware Update Wizard
Completing the Hardware Update Wizard
The wizard has finished installing the software for:
u-blox 5 - GPS Receiver (preliminary!!)
Click Finish to close the wizard.
< Back
Finish
Cancel

- Enter “Device Manager” to reconfirm if the USB driver is installed successfully and the assigned COM Port (under connection). Set this port in your navigation software. Do not use another program that accesses this port at the same time.



TROUBLE SHOOTING

- The GPS signal will become not good enough under the environment of tall buildings and trees. Even though the WGM-302 can receive reflected GPS signal, the data might be less accurate.
- Some car window film comprising too many metals would affect a reception of signal.
- The unstable atmospheric condition will effect a worse accuracy; however, if the location on map is always shifted no matter how signal is, please reconfirm if the datum system on the map you used is the standard WGS-84 or not.
- The WGM-302 utilizes initial data, such as last stored position, date, time and almanac data, to achieve maximum acquisition performance. If significant inaccuracy exists in the initial data, or the almanac data is obsolete, it may take more time to get acquisition, e.g. your current location is 500km away from the latest location you used it, or the device isn't used for three months.
- Avoid placing 2 GPS devices too close during positioning.
- Before connecting the WGM-302 to the computer, please make sure the USB driver has been installed and the right COM Port has been selected. (USB interface only)
- If the WGM-302 is not working for navigation under correct connection and data output, please reconfirm the format of NMEA 0183 for your navigation software, and set it via the WGM-302 Tool.

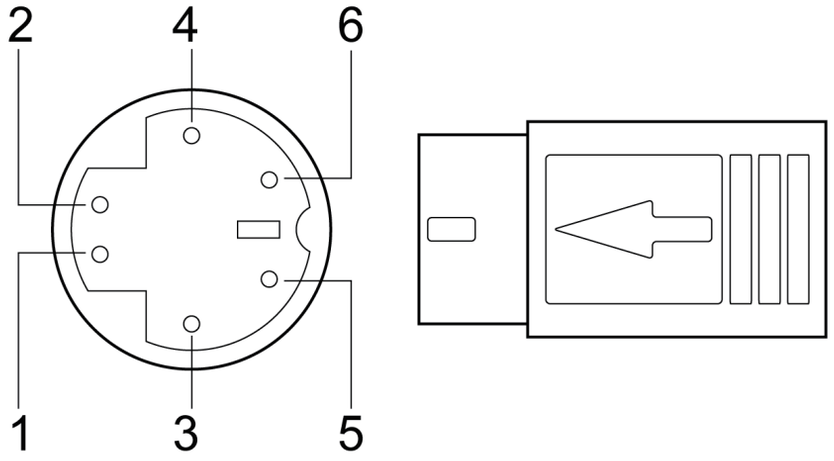
WARRANTY

The WGM-302 is warranted to be free from defects in materials and functions for one year from the date of purchase. Within this period, Wintec will, at its sole option, repair or replace any components that fail in normal use. Such repairs or replacement will be made at no charge to the customer for parts or labor, provided that the customer shall be responsible for any transportation cost.

PIN DEFINITION

The definition of PS/2 may differ from each manufacturer. To work with WGM-302, the standard definition is required as below.

Standard PS/2 male connector



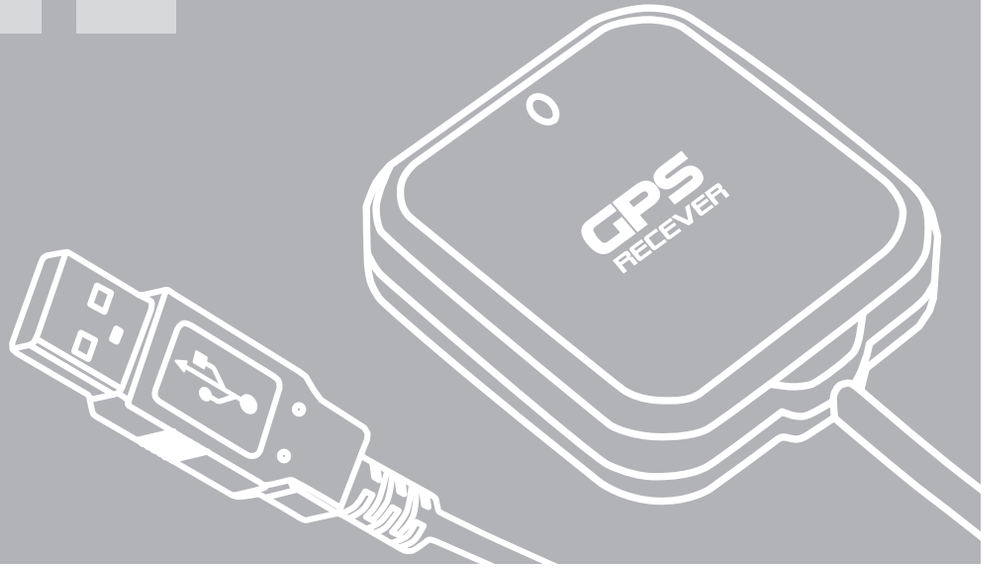
PIN	Pin's definition	Color
1	RS-232 RXD	Orange
2	TTL Level RXD	YEALLOW
3	RS-232 TXD	Brown
4	GND	BLACK
5	+5V	RED
6	TTL Level TXD	GREEN

Note: The above table is suitable for Wintec's standard product, excluding the custom-made item.

Wintec

WGM-302

GPS 接收機



繁體中文

使用者說明書

WGM-302
GPS 接收機

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產品簡介

Wintec WGM-302 衛星接收機 (以下簡稱 WGM-302)，是一個完整的衛星定位接收機。內建衛星接收天線，並採用瑞士 u-blox 公司所設計的 u-blox5 超高感度衛星定位接收晶片，適用於汽車導航、汽車追蹤、地圖製作、各種調查到農業用途等。藉由 USB 或 PS/2 介面可輕易與筆記型電腦，桌上型電腦， 車用電腦或其他的電子設備溝通。

包裝內容

1 X WGM-302 GPS 接收器
1 X 操作手冊
1 X 光碟片
1 X 防滑墊

開始使用本產品前，請確認您的包裝內含上述物品，
若遺漏任一物品，請洽您所購買的經銷商。

外觀概述

- GPS 模式 (定位前)： 紅色 LED 恆亮
- GPS 模式 (定位後)： 紅色 LED 閃爍

[WGM-302 U]: USB 介面
[WGM-302 P]: PS/2 介面

注意事項

- 全球衛星定位系統(Global Positioning System; GPS) 由美國政府所提供，並負責該系統的正常運作及定位精度的控制，基於美國本身的政策考量或國防安全，美國有權在不預先通知或公告的狀況下，降低整個系統的功能或定位精確度(如在戰爭時或刻意封鎖某一區域時)，美國政單位所做的任何變動都可能影響 GPS 設備的精準度及性能。
- 安裝 WGM-302 時需自行考慮安裝位置安全性。如汽車安全氣囊、容易因事故衝擊到駕駛或乘客的位置等，均不適合放置。此外，為了您的行車安全，我們強烈建議您不要於駕駛中同時操作本裝置。

- 導航期間，若您位於建築物內(如地下停車場)、隧道或周邊有高大地形地物阻擋時，GPS 衛星訊號的接收可能因受影響而導致暫時斷訊(失去定位)，此時並非裝置故障，只要 WGM-302 再次定位時，導航即會恢復正常。
- 請勿任意更換或改裝機械結構及零件，以免失去保固權益。
- 請勿在飛機飛行中或炸礦遙控等敏感度較高地區使用。
- 避免放置於高溫及高濕度地方太久。
- 若發現本機有異味煙霧產生時，請立即關機並送服務站。

產品規格

一般規格	
工作晶片	u-blox5, 超高感度衛星定位接收晶片
衛星通道數	可同時追蹤 18 顆衛星訊號。 32 channels acquisition engine
接收頻率	L1, 1575.42 MHZ
接收感度	-160dBm
精確度	一般定位 : 2.5m CEP 輔助定位 : 2.0m CEP (啟動 SBAS 功能) 動態 : 極限 4G (G 為地心引力)

通訊協定	NMEA 0183, 2.3 版
輸入電壓	5 伏特直流電 (VDC)
消耗電流	Acquisition 110mA Tracking 70mA
介面	USB [WGM-302 U] PS2 (UART/RS-23) [WGM-302P]
操作溫度	-20℃ ~ 70℃
外觀尺寸	40mm x 37mm x 13mm
傳輸速率	
[WGM-302 U]	Auto baud rate. (1200, 4800, 9600, 19200, 38400, 57600, 115200 bps)
[WGM-302 P]	4800 bps
定位時間 (平均值)	
熱開機	<1 秒
暖開機	25 秒

冷開機	30 秒
更新速率	每秒自動更新一次定位資訊(預設) 每秒更新 4 次定位資訊(最大值)

操作說明

- 使用 WGM-302 前，請先安裝光碟片內的設定工具程式 (WGM-302 Tool)。
- 將 WGM-302 的 USB 線接至電腦的 USB port 。此時電腦內的 Windows 系統會自動辨識此裝置。
- 將 WGM-302 放置在適當的位置，使其能接收到最好的衛星訊號。
- WGM-302 開始衛星定位功能，並以 NMEA0183 格式輸出相關資訊。

LED 指示燈

- LED 燈閃爍，定位成功。
- LED 燈恆亮，定位中。

作業系統

WGM-302 可使用在 Windows 2000/XP/Vista.
其相對應的驅動程式可在光碟片中取得。

WGM-302 Tool 安裝指南

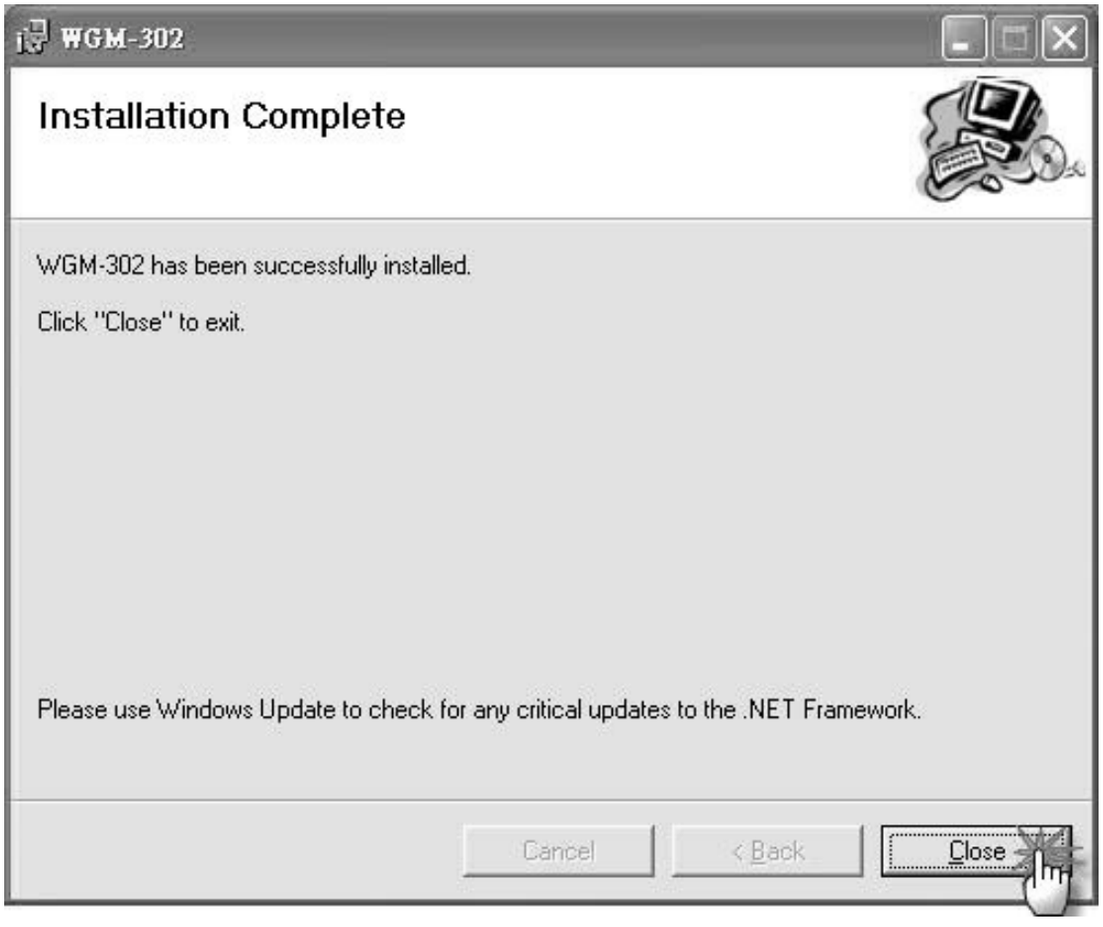
- 執行包裝內附的光碟片。
- 按 ”下一頁” 按鈕(如下圖) 進入下一頁面。
- 在產品列中選擇 “WGM-302” 。
- 選擇 “Install WGM-302 Tool (PC)” 。

- 選擇 “Next” 鍵開始安裝 WGM-302 Tool。此時 USB 驅動程式將同時被自動安裝。
- WGM-302 Tool 安裝完成。

- 請將 WGM-302 透過 USB 連結至電腦。此時電腦會自動偵測此 USB 裝置，並且要求安裝驅動程式。(下列安裝流程僅第一次連結時會出現)

- 選擇 "自動安裝軟體" ，並按 "下一步" 。
- 出現如下畫面時，請選擇 "繼續安裝" 。

- 選擇 ”完成” 鍵結束安裝。


WGM-302
Installation Complete
WGM-302 has been successfully installed.
Click "Close" to exit.
Please use Windows Update to check for any critical updates to the .NET Framework.
Cancel
< Back
Close

- 至 "裝置管理員" 檢視安裝狀態，並確認 USB 驅動程式對應到的 COM Port ，將此 COM Port 設定至您的導航軟體，即可將 WGM-302 用以導航。
- 請勿同時使用其他程式存取同一 COM Port 的資料。

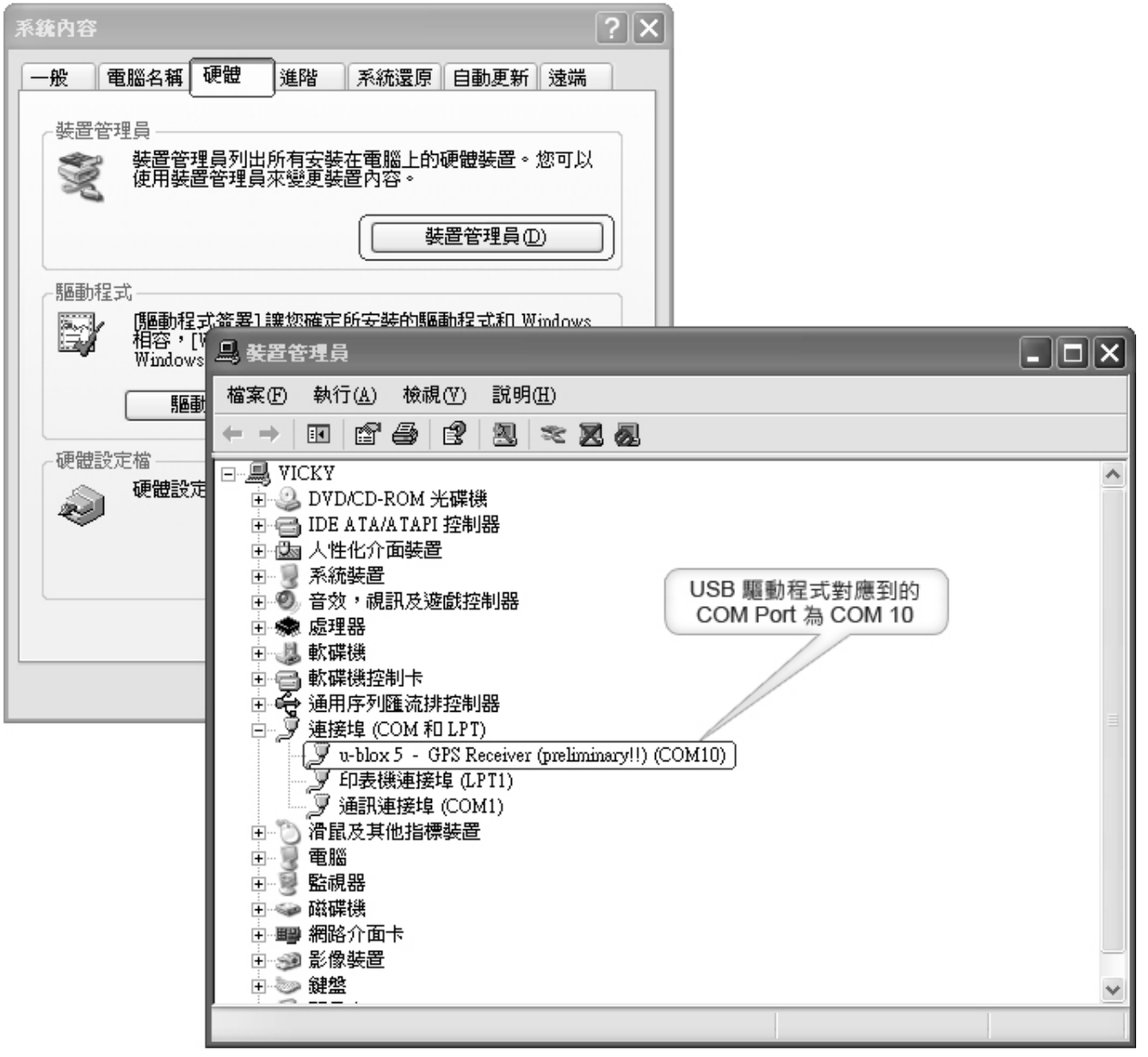
疑難排解

尋找新增硬體精靈
精靈安裝軟體時，請稍候...
u-blox 5 - GPS Receiver (preliminary!!)
硬體安裝
您正要爲這個硬體安裝的軟體:
u-blox 5 - GPS Receiver (preliminary!!)
尚未通過 Windows 標誌測試以確認它與 Windows XP 的相容性。(告訴我這項測試的重要性。)
繼續安裝(C)
停止安裝(S)

- 在高樓林立或樹木遮蔽天空的環境，可能會導致收訊不良的情況。雖然 WGM-302

可接收很微弱或甚至是反射的 GPS 衛星信號，但在此情況下，定位的精確度也勢必會受到一定的影響。

- 不穩定的大氣層變化亦會影響定位準確度。然而若您發現無論信號好壞，在地



圖上的位置卻總是偏移，請確認您所使用的地圖，其座標系統是否為6 點標準的 WGS-84 座標系統。

- WGM-302 利用內部儲存的初始資料，包含前次儲存的最後有效位置、時間與星曆資料，推算出目前天空所在的衛星分佈並加以追蹤鎖定，以達到最佳的定位效能。當內部儲存的初始化資料不正確，或星曆資料已過期時，則會導致較久的定位時間。若您持續超過三個月以上未使用本機，或距離您上次使用時的關機位置超過 800 公里， WGM-302 會採用冷開機模式來縮短定位時間。
- 定位時請勿讓 2 套 GPS 裝置太靠近，以免影響收訊。
- 將 WGM-302 連結至電腦前，請先確認 USB 驅動程式已安裝，並且已選擇正確的 COM Port 。
- 在正常連線且確定有資料輸出的情況下，若 WGM-302 無法正常使用於導航軟體，則請確認您的導航軟體所需的 NMEA 0183 格式，並透過 WGM-302 Tool 設定之。

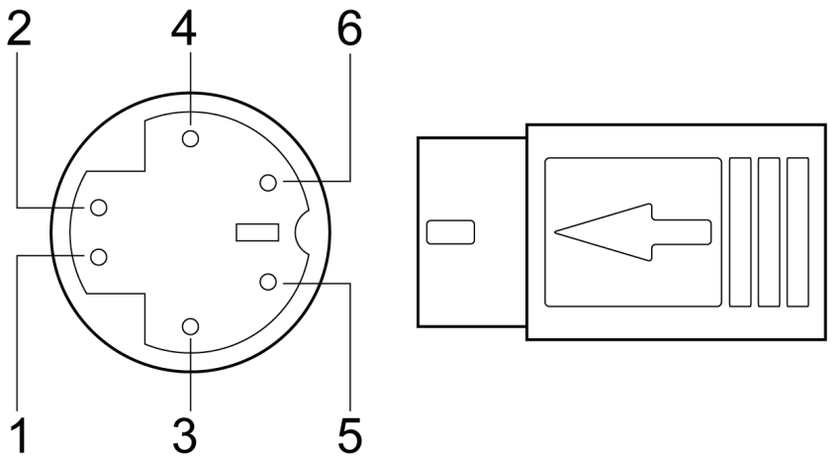
產品保固

- WGM-302 自購買日起含一年保固。購買產品後一年內，若在正常使用情形下，其機身材質或功能有任何瑕疵或故障， Wintec 會提供免費維修及更換零件服務。

PS/2 接腳定義

PS/2 界面之腳位，各廠商定義皆不相同，請務必遵照下圖定義，以確保正常動作。

標準 PS/2 公頭



腳位	腳位定義	內線顏色
1	RS-232 RXD	橙
2	TTL Level RXD	黃
3	RS-232 TXD	棕
4	GND	黑
5	+5V	紅
6	TTL Level TXD	綠

Wintec

www.wintec.com.tw